

REMARKS

Claims 1-9 are pending in the application.

It is noted the current Office Action lists claims 14-15 and 18-20 as withdrawn, but contains a substantive rejection of these claims on page 4, paragraph 5. Claims 10-20 were withdrawn in response to the restriction requirement mailed March 22, 2007. On June 17, 2008, the examiner confirmed to the undersigned claims 10-20 are withdrawn, only claims 1-9 are pending and the rejection of claims 14-15 and 18-20 is moot. Applicants thank the examiner for the courtesies extended during the teleconference.

Applicants assume all rejections based on Manginell et al., U.S. Patent No. 6,527,835 are overcome and withdrawn in view of the Declaration that was previously filed under 1.131 in the response filed August 7, 2006. No mention is made in the Office Action regarding the withdrawal of these rejections. Applicants request a statement that the rejections are overcome and withdrawn.

Claim Rejections**35 U.S.C. § 102**

In the Office Action on page 2, paragraph 2, claims 1-2 and 5 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,591,139 to Lin et al. ("Lin '139"). No reasons or bases for the rejection are listed in the Office Action. Applicants respectfully traverse the rejection.

Claim 1 recites a microheater for microfluidic devices comprising at least one microchannel having a length formed on a substrate and further comprising at least one conductor disposed in said microchannel along a majority of the length of said microchannel.

Applicants have already overcome the rejection of claim 1 over U.S. Patent No. 5,855,801 to Lin et al. ("Lin '801"), which is a divisional application of, and has a specification which is identical to, Lin '139. Applicants submit claim 1 is patentable over Lin '139 for the same reasons as already stated with respect to Lin '801. Applicants refer the Examiner to the Office Action mailed September 7, 2005 and the amendment in response thereto filed November 18, 2005. For convenience the Applicants reassert the arguments for patentability of claim 1 as follows:

Claim 1 requires the presence or formation of a microheater or microheater device in a

microchannel along a majority of a length of the microchannel.

The Lin '139 reference neither discloses nor suggests a microchannel having disposed therein a microheater or microheater device that is disposed along a majority of a length of a microchannel. The only microheater in the Lin '139 reference is formed from a plurality of individual resistors perpendicular to the microchannel and is located only in microflow channel 78 at the interface region 11 of the microneedle 10. There is no microheater or means to achieve microheating located in the remaining majority portion of the microflow channel 78. In contrast, the presently claimed invention includes a microheater that extends through at least a majority of the microchannel. As a result, the Lin '139 reference does not contain each and every limitation of claim 1. Therefore, it cannot anticipate claim 1. Claims 2 and 5 depend from claim 1 and recite additional features. Thus, these dependent claims are also not anticipated and are allowable. Accordingly, Applicants respectfully request this rejection be withdrawn.

35 U.S.C. § 103 – Claims 6-7 and 9 (Lin '139 in view of Ferguson)

In the Office Action on page 3, paragraph 4, claims 6-7 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of U.S. Published Patent Application No. 2003/0209534 to Ferguson ("Ferguson"). Applicants respectfully traverse this rejection.

Applicants assert again this rejection (made based upon the identical Lin '801), first made in the September 7, 2005 Office Action mentioned above, was overcome by the amendment in response thereto filed November 18, 2005. For convenience the Applicants reassert the previously stated arguments for patentability of claim 1 as follows:

Claim 1, from which claims 6, 7 and 9 depend, has been recited hereinabove. Applicants submit that neither Lin '139 nor Ferguson, alone or in combination, teach or suggest the present invention as claimed. Moreover, Applicants submit there would have been no motivation to combine the references, and even if such combination were made, the claimed invention would not result therefrom.

The Lin '139 reference relates to a micromachined needle having an interface region 11 and elongated shaft portion 14 and enclosed microchannel 78 disposed along the length of the interface

region 11 and shaft portion 14. The enclosed microchannel 78 includes a microheater 60 only in the interface region 11 and specifically does not include any heating device in the shaft region. See, *e.g.*, FIG 1A. Since the Lin '139 reference does not disclose, teach or suggest a microheater disposed in a microchannel along a majority of the length of the microchannel as claimed in claim 1, the teachings of the Lin '139 reference would not motivate one skilled in the art to look to Ferguson to achieve the presently claimed invention. Thus the combination of Lin '139 and Ferguson is improper. In any event, the combination does not result in the claimed invention.

The shortcomings of the Lin '139 reference have been set forth in detail. Nothing in Ferguson even remotely suggests the use or disposal of a microheater in a majority of a length of a microchannel. Accordingly, Ferguson does not remedy the deficiency in the Lin '139 reference.

The combination of the teachings of Lin '139 and Ferguson result in a microheater disposed only in an interface region of a microneedle having a substrate comprising quartz and borosilicate glass. That combination is not the invention of claim 1, let alone dependent claims 6, 7 and/or 9.

Based on the foregoing, the Applicants submit claims 6, 7 and 9, which depend from claim 1 and recite additional features, are not obvious in view of the cited references. Accordingly, Applicants respectfully request this rejection be withdrawn.

35 U.S.C. § 103 – Claim 3 (Lin '139 in view of Kenny)

On page 5 of the Office Action, paragraph 6, claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin '139 in view of Kenny (US 6,551,849, "Kenny"). Applicants respectfully traverse this rejection. Claim 3 depends from claim 1 and recites further features, *i.e.*, the conductor comprises an aluminum alloy comprising 99% aluminum and silicon and copper. The shortcomings of Lin '139 with respect to claim 1 have been detailed hereinabove. Kenny cannot cure these shortcomings. Moreover, Kenny does not disclose the alloy of claim 3. Since Lin '139 does not teach or suggest the invention of claim 1, and Kenny does not disclose the limitations of claim 3, the combination of references cannot result in the invention of claim 3. Applicants request this rejection be withdrawn.

35 U.S.C. § 103 – Claims 4 and 8 (Lin in view of Yamazaki and further in view of Ueno)

On page 6 of the Office Action, paragraph 7, claims 4 and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin ‘139 in view of Yamazaki (US 6,165,876, “Yamazaki”) and further in view of Ueno et al (US 2002/00224662, “Ueno”). Applicants respectfully traverse this rejection. Claims 4 and 8 depend from claim 1 and recite additional features. As set forth in detail hereinabove, the Lin ‘139 reference does not disclose the invention of claim 1. The teachings of Yamazaki cannot cure the deficiencies of the Lin ‘139 reference to achieve the invention of claims 4 and 8. The combination of Lin ‘139 and Yamazaki at best result in a microneedle device having an enclosed microchannel with a boron ion-implanted microheater only in the interface region and specifically does not include any heating device in the shaft region. This is not the invention of claims 4 and/or 8. Nor can the additional reference to Ueno cure the deficiencies of Lin ‘139 alone or in combination with Yamazaki. Accordingly, Applicants respectfully request this rejection be withdrawn.

Applicants submit that all claims pending in the patent application are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited. In the event there are any fees due and owing in connection with this matter, please charge same to our Deposit Account No. 11-0223.

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Respectfully submitted,

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